We claim:

1. A device for observing a field (10), comprising:

at least two video cameras (18a , 18b) each associated with optics for acquiring images of a common area of the field to be observed and delivering an electric signal representative of the acquired images;

an electronic device (20) for processing the signals delivered by the two cameras;

means for placing in memory representations of objects that appear in said field;

tracking means for automatically identifying at least two points P_1 and P_2 that are common to the acquired images, wherein at least one point is associated with one of said representations, and wherein the tracking means produces information relative to the position of these points in three-dimensional space;

calculation means (26c) to determine, from said information, a value representing the distance separating said points;

processing means (32) to transform said representative value into signals; and

communication means (22) to provide the operator with the information relative to this distance from signals coming from the processing means.

2. The device according to claim 1, wherein the two optics are rigidly associated to each other to form a stereoscopic endoscope (16).

3. The device according to claim 2, wherein:

the optics have parallel axes that are separated from each other by a distance D;

the optics have equal focal lengths of distance f;

the optics have coplanar focal planes; and

data produced by the tracking means comprises, for each of the two points P_1 and P_2, coordinates xL, xR and y of the image in the focal plan of the corresponding optics,

wherein xL is the x-coordinate of the image of the point in the left space, xR is the x-coordinate of the image of the point in the right space and y is the y-coordinate of the image of the point in the left and right spaces.

4. The device according to claim 3, wherein the calculation means (264) perform the steps of:

calculating the coordinates Xp_1, Yp_1 and Zp_1 of the point P_1, Xp_2 and Yp_2 and Zp_2 of the point P_2 in a cyclopean space using the formulae:

$$X = (D / \Delta).\ (xL + xR),$$

$$Y = D.\ y / \Delta, \text{ and}$$

$$Z = -\ D.\ f / \Delta, \text{ wherein } \Delta = xL - xR;$$

calculating the differences

$$Xp_1 - Xp_2,\ Yp_1 - Yp_2, \text{ and } Zp_1 - Zp_2; \text{ and}$$

determining the distance separating the two points P_1 and P_2 in three-dimensional space using the formula:

$$d_{12} = [(Xp_1 - Xp_2)^2 + (Yp_1 - Yp_2)^2 + (Zp_1 - Zp_2)^2]^{1/2}.$$

5. The device according to claim 1 wherein said communication means comprises a video screen (22) displaying an image of the observed field (10).

6. The device according to claim 5 wherein said processing means (32) generates a significant image of said representative value and superimpose the significant image on the image of the observed field on the video screen.

7. The device according to claim 6, wherein the significant image is an index.

8. The device according to claim 6, wherein the significant image is a zone showing a color gradient.

9. The device according to claim 1, wherein the device further comprises means (18c) for synchronizing the images of the two cameras.

10. The device according to claim 1, wherein the device further comprises an analog to digital converter (18d, 18-e) interposed between each camera (18a, 18b) and the respective electronic device (20) for processing the signals.

11. The device according to claim 10, wherein the device further comprises memory for the storage of signals coming from the analog to digital converters.

12. The device according to claim 10, wherein the electronic device (20) for processing the signals further comprises means for selecting (30a) only a part of the information coming from at least one of the converters, in order to reduce the volume of processed information.

13. The device according to claim 10, wherein the electronic device (20) for processing the signals further comprises correction means (30b) to process the images in order to reduce the effect of any aberrations of the cameras.

14. The device according to claim 1, wherein it further comprises a switch (23) that can limit the information displayed on the screen to the image coming from one of the cameras.